ORD 2231-65

12 August 1965

MEMORANDUM FOR: Deputy Director for Science and Technology

SUBJECT: ORD Comments Relative to Report of the
Ad Hoc Panel Concerning NPIC

REFERENCE: Memorandum from Executive Secretariat,
Scientific Advisory Board, 5 August 1965,
subject: Report of Ad Hoc Panel Concerning
NPIC

1. In general, one must agree in principle with the statements
and conclusions of the Ad Hoc Panel, but I feel that ORD has a role to
play, not so much in the short range adaptation and augmentation of
computer-driven systems, etc., but in the longer term research and
development necessary to equip the Agency and NPIC to technologically
meet the mass of material planned for collection. Specifically, there
are three areas that I feel are pertinent to ORD's roles and missions.

2. The first concerns the fundamental nature of the information
in a photograph and how the human brain discriminates and responds
to that information as a function of the various parameters that could
affect the information contained. Secondly, although one might in
principle automate the NPIC processing of photographic reels, by the
time this is accomplished I believe we will also have to be concerned
with   etc. Since
ORD is intimately involved with most of these areas, it makes sense
that we do R&D and be concerned with the ultimate processing of such
take, an effort which NPIC seems hardly well equipped to handle.

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separate big systems and to go charging off to commit large sums of money in order to make up for lost time. As you know, the history of some of these large intelligence processing computer schemes has not been rife with success in the past. There are undoubtedly, however, certain things that can be done now against these problems which are generally simple up-grading to the state of the art.

3. I am further concerned that neither NPIC nor DD/I have the full capabilities or competence to do a complete spectrum of the R&D against the problems. ORD, on the other hand, has a broad spectrum of capabilities which could be applied against this class of problems in the analysis area, but I don't feel that ORD should say "We will solve these problems and take on the full responsibility for their implementation". I am concerned, therefore, that ORD and its functions in the analysis area could get lost in the rush to automate DD/I and NPIC. I feel that ORD's role in this analysis and man/machine interface area should be truly an R&D role in which we would be the conscience of the Agency in this area in terms of moving toward the implications spelled out in the Long Range Forecast, and under these conditions the automation of DD/I and the automation of NPIC are only two candidates in a class of problems.

4. We have agreed that the augmentation of our analysis area should proceed to a much higher level than has been possible, say by a factor of 8 in '66, but I also feel that a broadly based technological capability to get the Agency braced for the wave of the future is going to require something that we might call an Intelligence Sciences Laboratory, wherein equipment and techniques in the core disciplines would be studied as well as the particular interfaces with optics, audio, information storage, etc., would also be studied in a manner that seems reasonable as an in-house effort. I feel that it would probably be quite difficult, in terms of capital investment, for a contractor to organize and develop both the continuing knowledge of the Agency and its problems and the large amount of special equipment necessary. The proprietary route, of course, is another form of action that could be considered as responsive but there are problems here, as we well know.

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3. The third major area is in the man/machine relationship involving image enhancement, pattern recognition, and image processing techniques. This is truly a research area, and the Panel correctly recognizes the computer-oriented aspect of such R&D, but our analysis group feels that this effort has many technological problems in common with other systems for the storage and retrieval of information and that display systems, machine linguistics, human factors, etc., are at the heart of the coming revolution in computer sciences. A possible step in this direction, aimed specifically at the NPIC problem, is to get a study started at _____ aimed at the first or third area, or both.

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4. Joe Becker says he does not feel that they want a piece of the action.

ROBERT M. CHAPMAN
Director of Research and Development

ORD/RMChapman:mh

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